

Application No.: 10/583,044
Amendment Dated: January 4, 2010
Reply to Office Action of: November 3, 2009

MAT-8859US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 10/583,044
Applicants: Osamu Funahashi, et al.
Filed: June 15, 2006
Title: LOUDSPEAKER
TC/A.U.: 2614
Examiner: Ryan C. Robinson
Confirmation No.: 6960
Docket No.: MAT-8859US

AMENDMENT UNDER 37 C.F.R. § 1.116

Expedited Procedure

MAIL STOP AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Responsive to the Final Office Action dated **November 3, 2009**, please amend the above-identified application as follows:

- ☐ **Amendments to the Specification** begin on page of this paper.
- ☒ **Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.
- ☐ **Amendments to the Drawings** begin on page of this paper and include an attached replacement sheet(s).
- ☐ **Amendments to the Abstract** are on page of this paper. A clean version of the Abstract is on page of this paper.
- ☒ **Remarks/Arguments** begin on page 5 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A loudspeaker comprising
 - a frame,
 - a magnetic circuit held by the frame,
 - a voice coil body disposed so as it can move freely in a magnetic gap of the magnetic circuit,
 - a diaphragm whose outer circumferential end is connected to the frame via a first edge, and
 - a suspension holder whose outer circumferential end is connected to the frame via a second edge; and
 - a supporting section attached to the voice coil body, wherein:
 - a diameter of an inner circumference of the suspension holder is greater than an outer diameter of the voice coil body while a diameter of an inner circumference of the diaphragm is greater than the diameter of the inner circumference of the suspension holder,
 - the suspension holder has an inner circumferential portion which is spaced apart from the voice coil body, the inner circumferential portion is disposed on a top surface of the supporting section and ~~the inner circumferential portion is~~ coupled via only an adhesive to the voice coil body, and
 - the diaphragm is disposed on and in contact with the suspension holder at an inner circumferential end of the suspension holder such that the diaphragm is supported by the suspension holder.

2. (Currently Amended) A loudspeaker comprising:

a frame,

a magnetic circuit held by the frame,

a voice coil body disposed so as it can move freely in a magnetic gap of the magnetic circuit,

a diaphragm whose outer circumferential end is connected to the frame via a first edge, and

a suspension holder whose outer circumferential end is connected to the frame via a second edge; and

a cylindrical supporting section attached to the voice coil body, wherein:

a diameter of an inner circumference of the suspension holder is greater than an outer diameter of the voice coil body while a diameter of an inner circumference of the diaphragm is greater than the diameter of the inner circumference of the suspension holder,

the suspension holder has an inner circumferential portion which is spaced apart from the voice coil body, the inner circumferential portion is disposed on a top surface of the supporting section and is coupled via an adhesive to the voice coil body, and

the diaphragm is disposed on and in contact with the suspension holder at an inner circumferential end of the suspension holder such that the diaphragm is supported by the suspension holder.

3. (Currently Amended) A loudspeaker comprising:

a frame,

a magnetic circuit held by the frame,

a voice coil body disposed so as it can move freely in a magnetic gap of the magnetic circuit,

a diaphragm whose outer circumferential end is connected to the frame via a first edge, and

a suspension holder whose outer circumferential end is connected to the frame via a second edge; and

a supporting section attached to the voice coil body, wherein:

a diameter of an inner circumference of the suspension holder is greater than an outer diameter of the voice coil body while a diameter of an inner circumference of the diaphragm is greater than the diameter of the inner circumference of the suspension holder,

the suspension holder has an inner circumferential portion which is spaced apart from the voice coil body, the inner circumferential portion is disposed on a top surface of the supporting section and is coupled via an adhesive to the voice coil body, the inner circumferential portion extending upwardly from the top surface of the supporting section, and

the diaphragm is disposed on and in contact with the suspension holder at an inner circumferential end of the suspension holder such that the diaphragm is supported by the suspension holder.

Remarks/Arguments:

Claims 1-3 have been amended. No new matter is introduced herein. Claims 1-3 are pending.

Claim 1 has been amended to recite that the suspension holder has an inner circumferential portion which is spaced apart from the voice coil body. Claims 2 and 3 have been amended similar to claim 1. No new matter is introduced herein. Basis for the amendment can be found, for example, at page 4, line 14 - page 5, line 3, and Fig. 2 of the subject specification.

Claims 1-3 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Funahashi et al. (US 2003/0185415) in view of Matsuda et al. (US 7,394,913). It is respectfully submitted, however, that these claims are patentable over the cited art of record for the reasons set forth below.

Claim 1, as amended, includes features neither disclosed nor suggested by the cited art, namely:

... a supporting section attached to the voice coil body ...

... the suspension holder has an inner circumferential portion which is spaced apart from the voice coil body, the inner circumferential portion is disposed on a top surface of the supporting section and is coupled via only an adhesive to the voice coil body ... (emphasis added)

Claims 2 and 3 include similar recitations.

Funahashi et al. disclose, in Fig. 8, a loudspeaker including voice coil member 15, diaphragm 26 and suspension holder 25. An inner peripheral part of diaphragm 26 is linked with a middle section of suspension holder 25. (Paragraph [0054].) An inner peripheral part of suspension holder 25 is linked with voice coil member 15. (Paragraph [0053].)

As acknowledged by the Examiner on page 3 of the Office Action, Funahashi et al. do not teach a) a supporting section attached to the voice coil body and b) the inner circumferential portion of the suspension holder disposed on a top surface of

the supporting section, as required by claim 1. In addition, Funahashi et al. do not disclose or suggest that an inner circumferential portion of the suspension holder is spaced apart from the voice coil body, as required by claim 1 (emphasis added). Instead, Funahashi et al. teach that suspension holder 25 is "linked" with voice coil member 15 (Paragraph [0053]). Furthermore, because Funahashi et al. do not teach a supporting section, suspension holder 25 cannot be spaced apart from voice coil member 15, and still be linked with voice coil member 15. Thus, Funahashi et al. do not include all of the features of claim 1.

Matsuda et al. disclose, in Fig. 2, speaker 10 including speaker cone 8 and damper 2 that are secured to voice coil bobbin 3 with adhesive A. Damper 2 is placed between frame 1 and voice coil bobbin 3. Speaker cone 8 is coupled to a leading end of voice coil bobbin 3. (Col. 2, lines 29-32 and col. 2, lines 41-56.) Speaker 10 also includes damper ring 11 fitted around and fixed to a portion of voice coil bobbin 3 behind the coupling positions to damper 2 and speaker cone 8. (Col. 2, lines 53-56).

Matsuda et al., however, do not disclose or suggest that the suspension holder has an inner circumferential portion which is spaced apart from the voice coil body, as required by claim 1 (emphasis added). Instead, Matsuda et al. shows, in Fig. 2, that damper 2 is connected to voice coil bobbin 3. Thus, Matsuda et al. do not include all of the features of claim 1 and do not make up for the deficiencies of Funhashi et al. Accordingly, allowance of claim 1 is respectfully requested.

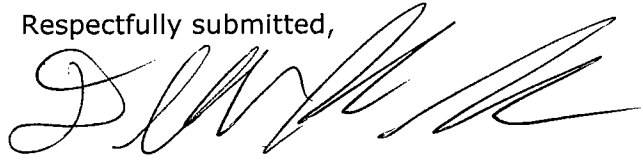
Claims 2 and 3, although not identical to claim 1, include features similar to claim 1 which are neither disclosed nor suggested by the cited art. Accordingly, allowance of claims 2 and 3 is respectfully requested for at least the same reasons as claim 1.

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In view of the foregoing amendments and remarks, the above-identified application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,



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